COOPERATIVE EXTENSION SERVICE
HOME, YARD & GARDEN PEST NEWSLETTER
College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana - Champaign
Illinois Natural History Survey, Champaign

Billbugs

Adult billbugs are small weevils, about 3/8 of an inch long, and brown or black in coloration. They have the distinct long snout and hard wing covers that are characteristic of the weevil family. Adult billbugs spend much of their time in the soil making them difficult to locate for identification. When adults are above ground, they are usually flightless and may be seen walking along driveways and sidewalks. The inability to fly prevents billbugs from traveling as far as some other pest species and means that billbug injury usually does not spread to cover large areas.

Adults chew holes into grass stems where they lay eggs. After hatching, billbug larvae begin to tunnel and feed within the grass stems and rhizomes. As the larvae mature, they emerge from the plants into the soil where they feed on the roots (this occurs prior to pupation). Billbug larvae are white and C-shaped. They are easily differentiated from white grubs because they are leg-less and much smaller, measuring up to ½ an inch. They may be difficult to locate because of their cryptic tunneling behavior.

Bluegrass billbug (*Sphenophorus parvulus*) adult and larva. Photo by David Shetlar, The Ohio State University, Bugwood.org.

Adult billbugs usually do not cause noticeable injury to turfgrass but the larvae can cause significant feeding damage. Billbug injury can be identified by browning, straw-like turf in two to three inch round patches. To differentiate billbug injury from that of other insects, you can use the "tug test." If the injured turf is pulled, it will break away easily. The grass plants will have holes in the stems and small brown pellets of frass may be found around the stems of the grass plants. If 10 or more billbug larvae are found per square foot of turfgrass, action can be taken to control the insect and prevent further injury.

Chemical controls for billbugs include chlorantroniliprole (Acelepryn) and trichlorfon (Dylox) which provide control within a few days of application. Chlorantroniliprole poses a lower risk to pollinators than many other chemical controls and trichlorfon can be used in areas where pesticides that breakdown quickly are preferred. Longer-acting, systemic insecticides, including imidacloprid (Merit), clothianidin (Arena) and thiamethoxam (Meridian), may take a couple of weeks to control the insects and will persist within the plants for some time. It is important to avoid applying neonicotinoid insecticides to lawns that have a mix of turfgrass and clover, to protect the bees and other pollinators that visit clover flowers.

If a non-chemical control is preferred, entomopathogenic nematodes can be used. Nematodes, such as *Heterohabditis bacteriophora*, attack larvae and can provide good protection within a few days of application. They may also be more effective in treating mature larvae. Nematodes will provide about

60% control while chemical controls may provide 95% control. However, both options provide good protection against further injury.

(Sarah Hughson)

Canada Thistle Management in Lawns and Landscapes

Canada thistle (*Cirsium arvense*) is a noxious (and obnoxious) weed that I occasionally get questions about. This plant is listed in the noxious weed laws for most states meaning that its control is required by law. Illinois is no exception. If Canada thistle is growing on land that you own or manage, you are required to control it. Failure to do so may result in your being slapped with an unwanted fine. However, because this law is poorly enforced in many counties, we see more Canada thistle growing happily and spreading wildly than we should. It is commonly found along roadsides and in pastures, lawns, gardens, crops, and meadows.

Many thistles are biennials meaning that they require two years to complete their life cycle and produce seeds. Unlike many other thistles, Canada thistle is a rhizomatous perennial. That means that shoots can arise from their extensive underground system. These shoots are erect and do not form a rosette as seedlings do. Roots and rhizomes commonly extend 3 to 6 feet down in the soil profile (sometimes as deep at 18 feet). Laterally, they can run 20 feet. This makes physically and completely uprooting the plant quite difficult to do. Tillage results in broken root pieces which produce new shoots within about 15 days. This plant is well known for its rapid spread by both rhizomes and seed. One plant is capable of producing 1,500-5,000 long-lived (20 years or more), airborne seed that can travel long distances. Seeds are capable of germinating within 8 to 10 days after the flowers open. If that were not enough, one plant can also produce 6 meters of rhizomes per year. Most of the rhizomes stay within 1 foot of the soil surface. Elizabeth J. Czarapata, author of "*Invasive Plants of the Upper Midwest,*" ranks this weed as being an invasive plant of "major concern."

Canada thistle is a cool-season perennial and actively grows in the spring and fall. It produces flowers very early in summer, usually in early to mid-June. Growth slows during hot weather. By early July, seeds are fully developed. This can vary depending on the year's growing conditions of course. Aboveground portions can be killed by frost. Brown, erect stems may persist into the winter.

Plants can grow 2 to 5 feet tall. The stems are hairy and seedling leaves are covered with short bristly hairs. The leaves of mature plants are simple, alternate, and lobed with spiny margins. The upper leaf surface is dark green and hairless, while the lower surface is light green and may or may not have hairs. Flowers are numerous, small (less than 1"), spineless (unlike most other thistles), and bear pink-to-purple sometimes white flowers. Plants are dioecious and grow in patches of all male or female plants. Cross-pollination is necessary. Only the females produce seed.

The key to controlling Canada thistle is to control it early before it has a chance to produce seeds and a serious network of rhizomes. Mowing or repeated cutting may be used to help prevent the spread by preventing the production of seeds and starving the plant. Mowing too late, however, can spread the seed. Postemergent applications of a systemic herbicide may be used. Fall is typically the best time for these treatments as cool temperatures lead to active growth. Other good times are during the early bolting stage when plants are 6-10" tall and during the bud to flowering stage. In lawns, some herbicide options are 2,4-D, MCPP, MCPA, dicamba, triclopyr, carfentrazone, and quinclorac. Clopyralid is quite effective on thistle but may not be used on residential lawns. Non-selective herbicides such as glyphosate may also be used. Systemic herbicides which move down to the roots and using the full labeled rate will provide the best results. Lawns should be properly maintained to promote a healthy dense turf that will compete well with weeds.

Perhaps, your site is not a lawn but instead a landscape bed. Many of these products are not labeled for this use due to the variety of species present. Be sure that the product you use is labeled for the intended area. Often times, careful spot treatments of non-selective herbicides are your only chemical option. Nearby sensitive plants may be covered with plastic prior to application. The plastic may be removed as soon as sprays dry. Applications may also be painted on using a brush or sponge. Be sure to read and follow all label directions carefully. Realize that multiple applications may be needed to eradicate this weed. Persistence is critical to success.

Pictures:

Canada thistle growing in a lawn.

Canada thistle growing in a landscape bed.

Canada thistle in bloom.

(Michelle Wiesbrook)

Pear Trellis Rust

Pear trellis rust (also known as European pear rust) is a fairly rare rust disease in Illinois. Other gymnosporangium rusts diseases (cedar-apple, cedar-hawthorn, and cedar-quince) are much more common, but we have confirmed a few cases of pear trellis rust at the Plant Clinic over the past few

years. For more information about the common gymnosporangium rusts, please see this 2017 Home, Yard, and Garden Pest Newsletter article: http://hyg.ipm.illinois.edu/article.php?id=913

The fungal pathogen which causes pear trellis rust, *Gymnosporangium sabinae*, was introduced to the United States in the 1990s from Europe. As with other gymnosporangium rusts, it requires two host plants; in this case, the pathogen infects common and callery pear as the deciduous host and various juniper and eastern red cedar plants as the coniferous host.

In spring, orange, gelatinous, spindle-shaped galls appear on juniper branches. These galls produce spores which spread to the pear host via wind and rain. Symptoms begin to appear on pear trees in summer, as large, yellow/orange leaf spots develop on the leaves. As the season progresses, these spots often turn purple/brown and small fruiting structures will develop on the undersides of the leaves. Twig and branch galls may also form on the pear host.

Figure 1 Pear trellis rust in early summer displaying orange/yellow leaf spots

Figure 2 Pear trellis rust in late summer once the majority of the leaf spots have turned brown

The symptoms of pear trellis rust can be similar to those of cedar-hawthorn rust. One diagnostic difference is the shape of the fruiting structure (aecium) produced on the underside of the leaf; pear trellis rust produces a characteristic “acorn-shaped” aecium. However, these structures are quite small and can be difficult to see clearly. Samples can also be submitted to the University of Illinois Plant Clinic for identification.

Figure 3 "Acorn-shaped" aecium on the underside of the leaf

Pear trellis rust poses a threat to the health of the pear host, causing reduced growth, a thinning crown, and branch dieback following several years of repeated infection. The disease does not appear to cause damage to the juniper host. Management consists of removing unwanted juniper, pruning out galls found on junipers, planting juniper species resistant to gymnosporangium rusts, and removing infected pear leaves, fruits, and twigs in late summer. Removing infected tissue from both the juniper and the pear hosts may not be feasible, depending on the size and level of infestation. Fungicides labeled for use on pear against other gymnosporangium rusts (chlorothalonil, fenarimol, mancozeb, myclobutanil, propiconazole, pyraclostrobin, tebuconazole, thiophanate-methyl, triadimefon, and trifloxystrobin) may

be effective when applied in early spring at white bud stage and continued at the labeled interval, 1 to 2 weeks past petal fall. Always read and follow label directions carefully.

(Diane Plewa)

Protecting Yourself in the Heat and Humidity

The heat and humidity of summer have kicked in for 2019. Those in the landscape industry spend much of their time outdoors, therefore are at an increased risk for heat exposure and related illnesses. Each year, dozens of workers die, and thousands more become ill while working in extreme heat or humidity. There is a range of heat illnesses, and they can affect anyone, regardless of age or physical condition. These are all preventable if some simple precautions are made. In 2011, the Occupational Safety and Health Administration (OSHA) started a Heat Illness Prevention Campaign that focuses on the dangers of working in the heat.

When a person works in a hot environment, the human body must get rid of the excess heat to keep its temperature stable. The body does this by circulating blood and by sweating. Sweating is usually the most effective way to cool the body naturally. As the sweat evaporates from the skin surface it has a cooling effect due to evaporative cooling. When temperatures are close to normal body temperature, and the humidity level is high, the sweat cannot evaporate.

At this point, the body cannot get rid of excess heat; it begins to store it. When this happens, the body's core temperature rises, and the heart rate increases. As the body continues to store heat, it is less able to perform normal functions. When our bodies can’t keep up, we experience heat exhaustion, and in more severe cases, heatstroke.

Heat exhaustion can take place over several days of working outside without proper rehydration. Symptoms include:

- Moist, clammy skin
- Weakness and muscle cramps
- Headache
- Dizziness, nausea, or vomiting
- Fainting

Treat victims of heat exhaustion by getting them to a cool place with good air movement, get them to lie down, and elevate their legs. Apply cold packs or wet towels while the victim drinks cold water. If symptoms do not improve after 30 minutes, seek medical attention.

Heatstroke is the most severe heat-related illness. Side effects can be as dangerous as organ failure, coma, or death. Symptoms of heatstroke include:

- High body temperature
- Hot, dry skin (not sweaty); red, flushed appearance
- Rapid pulse and difficulty breathing
- Confusion, hallucinations, or irrational behavior
- Agitation, convulsions, or seizure

If you suspect someone is having a heatstroke, dial 911 immediately.

The OSHA Heat Illness Prevention Campaign recommends the following three key ways to beat the heat:

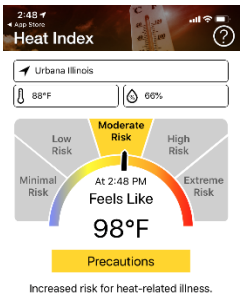
- WATER: Drink plenty of fluids throughout the day. As you become more heat-stressed, your brain is not functioning properly, and you don't remember or have a desire to drink. Be sure to drink small amounts of water more often. A good rule of thumb is to drink 4 cups of water every hour. It is best to drink a small amount of water every 15 minutes.
- REST helps your body recover.
- SHADE: Resting in the shade or air-conditioning helps you cool down

Other precautions that you should consider taking while working in the heat-

- Wear light-colored breathable clothing
- Wear sunscreen and a hat
- Check on coworkers often
- Avoid caffeine as it acts as a diuretic and causes you to lose more water in your body.
- Check your medications to determine if they make you more susceptible to heat stress. This might require talking with your medical provider or the pharmacist.
- Personal protective equipment such as respirators or coveralls can increase heat stress so complete the task in short intervals taking breaks in between or completing a pesticide application in the mornings before it gets too warm.
- Start the days as early as possible to end before it gets too warm.

It is essential to share these practices with employees so that they can prevent heat-related illness or exposure. Be sure to equip employees with water coolers, cups and ice prior for their departure of the workday. Check-in on them often and encourage breaks throughout the day. All employees should be made aware of the signs of heat-related health problems.

OSHA has a free app for mobile devices that enables workers and supervisors to monitor the heat index at their work sites. The app displays a risk level for workers based on the heat index, as well as reminders about protective measures that should be taken at that risk level. I have this app installed on my phone and is very helpful while working outdoors.



https://www.lawnandlandscape.com/article/ll-060811-working-hot-weather/

https://www.osha.gov/SLTC/heatillness/dropin_article_long.html

(Maria Turner)